

3M Advanced Materials Division

# 3M™ Dyneon™ High Temperature Perfluoroelastomer PFE 133TB

## Features and Benefits

- Ideal for dry side (thermal processes) semiconductor applications including plasma
- Upper use temperature of 315°C
- Excellent compression set resistance offering enhanced sealing force retention and seal life
- Very low metal ion content with low extractables

## Typical Properties

Property	Units	Value
Specific Gravity		2.0
Color		White
Form		Crumb
TR 10	°C (°F)	-2°C (28°F)
Brittleness Point	°C (°F)	-35°C (-31°F)
Mooney Viscosity ML 1 + 10 @ 121°C (250°F)	MU	110

## Product Description

3M™ Dyneon™ PFE 133TB is a technically advanced high temperature perfluoroelastomer (HT PFE). It is designed to meet the challenges of higher temperature plasma applications. It is classified as FFKM per ASTM D1418. Its fully fluorinated backbone structure provides a very broad chemical and thermal stability.

## Delivered Product Form

Dyneon PFE 133TB is packaged in crumb form. It is available in 1 kg and 10 kg boxes.

**Note:** Package size(s) may vary by region.

## Safety/Toxicology

Before processing 3M™ Dyneon™ Perfluoroelastomers, read and follow all precautions and directions for use contained in the product label and Safety Data Sheet (SDS). General handling precautions and directions for use include: (1) Store and use all Dyneon perfluoroelastomers only in well ventilated areas; (2) Do not smoke in areas contaminated with dust from perfluoroelastomers; (3) Avoid eye contact; (4) After handling Dyneon perfluoroelastomers wash any contacted skin with soap and water. Potential hazards, including evolution of toxic vapors, can occur during compounding or processing under excessively high temperature conditions. Appropriate local exhaust ventilation such as vapor extractor units should be installed above compounding or processing equipment. When compounding, be sure to read and follow all precautions and directions for use from other compound ingredient suppliers.

**Note:** Data in this document are not for specification purposes.

## ISO Registrations

All Dyneon fluoroelastomers are manufactured at ISO 9001 and 14001 registered facilities.

## Typical Properties of Vulcanizate

Compound	phr
3M™ Dyneon™ Perfluoroelastomer PFE 133TB	94
Aerosil® R972	1.5
3M™ Dyneon™ Perfluoroelastomer Curative PFE 01CZ	7.5
TiO <sub>2</sub>	5

## Typical Rheological Properties [ASTM D5289]

Moving Die Rheometer (MDR) 100 cpm, 0.5° Arc  
15 Minutes @ 188°C (370°F)

Property	Units	Result
ML, Minimum Torque	dN m (inch-lb)	1.7 (1.5)
ts2, Time to 2 Inch-lb Rise from Minimum	Minutes	1.8
t'50, Time to 50% Cure	Minutes	2.7
t'90, Time to 90% Cure	Minutes	5.8
MH, Maximum Torque	dN m (inch-lb)	17.5 (15.5)

## Typical Physical Properties [ASTM D412]

Press Cure 15 Minutes @ 188°C (370°F)  
Post Cure 24 Hours @ 250°C (482°F)

Property	Units	Result
Tensile	MPa (psi)	16.0 (2323)
100% Modulus	MPa (psi)	9.1 (1327)
Elongation at Break	%	192
Durometer Type A Hardness [ASTM D2240]	Points	79

## Compression Set Resistance [ASTM D395 Method B, -214 O-rings]

Property	Units	Result
70 Hours @ 232°C (450°F) – 25% Deformation	%	26
168 Hours @ 232°C (450°F) – 25% Deformation	%	39
70 Hours @ 300°C (572°F) – 25% Deformation	%	60

## Customer Service

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